Airport Moving Map (AMM)

Terrain & Obstacle Databases

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NTSB Public Conference on Geographic Information Systems in Transportation Safety
4 Dec 2012
Why Airport Moving Map

Data valid through 3-Jun-2012
2012: Data through JUN 3 2012. 1164 projected EOY
Source: Federal Aviation Administration
Runway Incursion and Excursion Events
IATA Safety Report

- 2011 - 17 Runway excursion accidents – 0 fatalities
- 2010 - 20 Runway excursion accidents 10% fatal

- 2011 - 0 Runway incursion accidents
- 2010 - 0 Runway incursion accidents

- Does not include Air Taxi, General, Business and Military Aviation
Jeppesen Airport Moving Map - Overview

Own-Ship Position
Magenta spotter
Jeppesen Airport Moving Map - Overview

Own-Ship Position
Magenta spotter

Highlighting
Highlight your route of taxi
AMDB - KORD Sample – Incursion Hot Spots
COVERAGE – >730 AIRPORTS & COUNTING
AMM Front Panel Deployments

A380

B787
JEPPesen AMDB for Airbus “Brake to Vacate” (BTV)

- Improves management of approach & landing
- Runway Overrun Warning (ROW)
- Runway Overrun Protection (ROP)
- Value Proposition
  - Guarantee to vacate at the assigned exit
  - Reduce brake temperature & wear
  - Reduce max thrust reversers on dry runways
  - Reduce noise level on ground, fuel use, emissions
  - Minimize runway occupancy time
  - Reduce Taxi-Out time to the gate - Fuel Burn
AMDB Roadmap – What’s next?

- Compliance with DO-272C
  - Routing Network - Accommodates Digital Taxi
  - Temporality attributes afford sub-cycle changes

- Early adoption of elements that will be eventually addressed if DO-272D gets approval to proceed from RTCA
  - Hold position “Doormats” – Accommodates SVS
  - Published Taxi Routes
  - Low Vis Routes

- Tailored airline AMM data (Highlight Gates, Operators specific Runway /Taxiway restrictions, Preferred routes, Ramp frequencies, company specific deicing areas)
AMDB Roadmap – What’s next?

Airport Chart

Single application for all Airport info and Ground operation requirements

Low Vis Procedures

Gate Chart

Airframe specific Restrictions

Digital NOTAMs
Airframe Specific Airport Diagram
Accurate Airport Diagrams

- Jeppesen worked with Executive Jet Management to complete field trials analyzing the usability, accuracy, reliability and quality of a simple situation awareness tool during taxi operations.

- Pilots were provided with portable GPS receiver to enable own-ship display on Jeppesen accurate airport diagrams of 23m or better using Mobile FliteDeck on iPad.

- As a result of this study, effective JAN 31 2013 the FAA is implementing a new policy to support this ground-based capability as a “Type B” application, thus allowing acft spotters on Airport Diagrams of sufficient accuracy.
Accurate Airport Diagrams

- ANSP supplied airport diagrams often contain gross errors
- Errors exceeding 100m are common
- Database Accuracy required from DO-257A for display of acft spotters
  - Total runway error budget 79m
  - Total taxiway error budget 101m
- Low accuracy airport diagrams cannot display own-ship
- It is not practical to create an AMDB for every airport in the World

- The Solution: Accurate Airport Diagrams @ 23m or better acc
- Total error budget 40m (GPS location acc. 17m + Database acc. 23m)
**Mobile Roadmap**

### Terminal
- **Standard**
- **Tailored**

### Enroute
- **Standard**
- **Weather**
- **Tailored**

### Text
- **Standard**
- **Tailored**

### Further Enhancement
- **Document Mgmt.**
- **Flight Planning**
- **AMM**
- **Crew Briefing**

**Windows**
- Already hosting Jeppesen FliteDeck Pro on Win 7.1
- Win8 will be supported

**Android**
- Galaxy development is moving along – 1st release in Q3 2012
Controlled Flight into Terrain Events – IATA Safety Report

- 2011 - 10 accidents 90% Fatal
- 2010 - 7 accidents 86% Fatal

- Does not include Air Taxi, General, Business and Military Aviation
Overview
The Jeppesen Terrain Database provides the latest generation of terrain data for prevention of controlled flight into terrain and terrain avoidance warning systems (TAWS). Developed as a worldwide database based on the Shuttle Radar Topography Mission (SRTM) data from the National Geospatial Intelligence Agency (NGA).

The Jeppesen Obstacle Database is the world's most complete database of obstacles relevant to aviation. The database contains man-made and certain natural obstacles extracted from digital and paper sources provided by governmental civil aviation authorities and military agencies worldwide.
Obstacle database

The Obstacle Database Can be Viewed in Google Earth
TAWS
Terrain Awareness and Warning System

FAA TSO-C151c - Class A TAWS equipment must provide indications of imminent contact with the ground for the following conditions:

Mode 1: Excessive rates of descent

Mode 2: Excessive closure rate to terrain

Mode 3: Negative climb rate or altitude loss after takeoff

Mode 4: Flight into terrain when not in landing configuration

Other Uses of Digital Terrain and Obstacle Databases

- Aeronautical charts (examples follow)
- Airport Obstacle Analysis (AC 120-91)
- Moving Map displays
- SVS
- Flight Planning systems
- Flight Procedure Design
- TAAM (Airspace and Airport Modeling software)
Terminal Aeronautical Charts

Terrain Contours

High Point elevations
Enroute Paper charts

Terrain
Contours

High Point
elevations

Grid MORAs
Enroute Electronic Charts

FliteDeck Pro

Boeing Enroute
Why chart Terrain if it is not used in the Procedure?

Situational Awareness:

“The perception of the elements in an environment of time and space, the understanding of their meaning, and the projection of their status in the near future”

END